

EXHIBIT 8

[Translation]

[E-mail to the inventor Sang Won Son from K&C staff, Jiwon Lim]

From: zjwlim (Ji-Won Lim)
Date: January 17, 2007 2:46 PM
To: aswonas@empal.com
Cc: jykim1 (Joo-Young Kim)
Subject: FW: [To. Mr. Ju Hyun Ban and Mr. Sang Won Son] An announcement from Law offices of Kim & Chang (FE241486)
Attachment(s): FE241486- JHBSWS -SIGNATURE DOCUMENTS.pdf
WO2005011150_TOT.pdf

Re: U.S. Patent Application No. 10/561,351 (Our Ref. FE241486)

Dear Mr. Son,

Below is an announcement from the law offices of Kim & Chang:

With respect to the above-identified application, we obtained signed documents from Mr. Ju Hyun Ban, the other joint inventor, and also forwarded the documents to our U.S. associate, while awaiting your response.

In this regard, we provided you with the Inventor's Declaration, as submitted to Hyundai Syscomm, for your review. Furthermore, we also provide you with the specification and drawings as filed with the U. S. Patent and Trademark Office for your review.

We understand your views may be complex, however, we would appreciate it if you could notify us of your decision after reviewing the U.S. specification and drawings via e-mail. If you have any questions or comments, please do not hesitate to contact us. We look forward to your response.

Law Offices of Kim & Chang
Patent Attorney Joo-Young Kim (Tel. 02-2122-3561)
Assistant Manager Jiwon Lim (Tel. 02-2122-3838)

zjwlim (Ji-Won Lim)

보낸 사람: zjwlim (Ji-Won Lim)

보낸 날짜: 2007년 1월 17일 수요일 오후 2:46

받는 사람: 'aswonas@empal.com'

참조: jykim1 (Joo-Young Kim)

제목: FW: [반주현,손상원님] 김.장법률사무소입니다.(FE241486)

첨부 파일: FE241486-반주현,손상원-서명서류.pdf: WO2005011150_TOT.pdf

Re: 미국특허출원번호 제 10/561,351 (당소정리번호 FE241486)

안녕하십니까 김장법률사무소입니다.

상기 특허진행과 관련하여 공동발명자이신 반주현 선생님의 서명서류를 지난 2006년 12월 6일자로 미국측에 전달하였고, 현재 손상원 선생님의 의견을 기다리고 있습니다.

이 과정에서 저희 사무소에서는 선생님께 현대시스템에 제출하신 발명신고서를 첨부하여 검토를 부탁드렸습니다만, 본 서신에 미국특허청에 제출된 미국출원 명세서도 함께 첨부하여 보내드리오니 이를 검토하시고 서명 서류에 대한 선생님 의견을 부탁드립니다.

다소 번거로우시겠지만, 첨부된 미국출원 명세서를 검토하신후 이에 대한 협조여부를 회신으로 알려주시면 감사하겠습니다.

김.장법률사무소

변리사 김주영 (전화 02-2122-3561)

과장 임지원 (전화 02-2122-3838)

From: zjwlim (Ji-Won Lim)

Sent: Friday, October 27, 2006 10:40 AM

To: 'vangari@yahoo.co.kr'; 'aswonas@empal.com'

Cc: jykim1 (Joo-Young Kim)

Subject: FW: [반주현,손상원님] 김.장법률사무소입니다.(FE241486)

반주현, 손상원 선생님,

아래 메일에 이어서 다시한번 연락드립니다.

아래 말씀드렸지만, 선생님께서 서명하신 서류가 간급히 미국특허청에 제출되어야 하는 상황입니다.

이번 이메일을 받아보시고 다음주중에 아래 담당자(김주영, 임지원)에게 연락을 주시기를 부탁드립니다. 위 서류에 서명을 하실지 여부는 전적으로 선생님께서 선택하실 수 있는 사항입니다만, 사인을 해주실지 어떨지 의사를 알려주시기 바랍니다.

위 건에 대한 기한이 측박한 관계로, 연락이 없으시면 저희가 알고있는 주소지(군포, 대구)로 직접 방문하여 설명드리고 서명을 요청드릴 예정입니다.

선생님의 연락을 기다리겠습니다.

김.장법률사무소

변리사 김 주 영 (전화: 02-2122-3561)

과장 임 지 원 (전화: 02-2122-3838)

From: zjwlim (Ji-Won Lim)

Sent: Monday, September 18, 2006 7:59 PM

To: 'vangari@yahoo.co.kr'; 'aswonas@empal.com'

Cc: jykim1 (Joo-Young Kim)

Case No.: 05-616-B

**DECLARATION AND POWER OF ATTORNEY
FOR PATENT APPLICATION**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Method for Automatically Setting a Frequency of a Base Station in a CDMA-2000 System

the specification of which is attached hereto unless the following space is checked:

was filed on December 19, 2005 as United States Application Serial Number 10/561,351.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR § 1.56 (including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application).

I hereby claim foreign priority benefits under 35 U.S.C. § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT international application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s):

	<u>Number</u>	<u>Country</u>	<u>Day/Month/Year Filed</u>
1.	PCT/KR2004/001854	PCT	23 July 2004
2.	10-2003-0051154	Korea	24 July 2003

I hereby appoint the practitioners associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and I direct that all correspondence be addressed to that Customer Number.

Customer Number: 020306

Principal attorney or agent: Robert J. Irvine, III

Telephone number: 312-913-0001

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor: Ju Hyun BAN

Inventor's signature: _____ Date: _____
Residence: 1292-12 Gwaneum-dong, Buk-gu, Daegu 702-802,
Republic of Korea
Citizenship: Republic of Korea
Post Office Address: 1292-12 Gwaneum-dong, Buk-gu, Daegu 702-802,
Republic of Korea

Full name of second inventor: Sang Won SON

Inventor's signature: _____ Date: _____
Residence: #203, 94-2 Sanbon 1-dong, Gunpo-si, Gyeonggi-do 435-838,
Republic of Korea
Citizenship: Republic of Korea
Post Office Address: #203, 94-2 Sanbon 1-dong, Gunpo-si, Gyeonggi-do 435-838,
Republic of Korea

ASSIGNMENT

Case No.: 05-616-B
 Inventors: Ju Hyun BAN, Sang Won SON
 Date of Execution
 of Application:

Serial No.: 10/561,351

Filing Date: December 19, 2005

In consideration of One Dollar (\$1.00) and other good and valuable considerations in hand paid, the receipt and sufficiency whereof are hereby acknowledged, the undersigned hereby assign to:

UTSTARCOM KOREA LIMITED

its successors and assigns, the entire right, title and interest in the invention or improvements of the undersigned disclosed in an application for Letters Patent of the United States, entitled:

**METHOD FOR AUTOMATICALLY SETTING A
FREQUENCY OF A BASE STATION IN A CDMA-2000 SYSTEM**

and identified as:

Case No. 05-616-B

in the offices of McDONNELL BOEHNEN HULBERT & BERGHOFF LLP and in said application and any and all other applications, both United States and foreign, which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States and foreign countries, which may be obtained on any of said applications, and in any reissue or extension of such patents, and further assigns to said assignee the priority right provided by the International Convention.

The undersigned hereby authorize and request the Commissioner of Patents and Trademarks to issue said Letters Patent to said assignee.

The undersigned hereby authorize and request the attorneys of record in said application to insert in this assignment the filing date and serial number of said application when officially known, and the date of execution of the application.

The undersigned warrant themselves to be the owners of the entire right, title and interest in said invention or improvements and to have the right to make this assignment, and further warrant that there are no outstanding prior assignments, licenses, or other encumbrances on the interest herein assigned.

For said considerations the undersigned hereby agree, upon the request and at the expense of said assignee, its successors and assigns, to execute any and all divisional, continuation and substitute applications for said invention or improvements, and any necessary oath, affidavit or declaration relating thereto, and any application for the reissue or extension of any Letters Patent that may be granted upon said application and any and all applications and other documents for Letters Patent in foreign countries on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations the undersigned authorize said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agree, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence, and performing any and all other acts necessary to obtain, maintain and enforce said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely

as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

WITNESS my hand and seal this _____ day of _____.

Ju Hyun BAN

State of

County of

The foregoing instrument was acknowledged before me this _____ day of
_____, _____ by _____.

NOTARY PUBLIC

WITNESS my hand and seal this _____ day of _____.

Sang Won SON

State of

County of

The foregoing instrument was acknowledged before me this _____ day of
_____, _____ by _____.

NOTARY PUBLIC

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
3 February 2005 (03.02.2005)

PCT

(10) International Publication Number
WO 2005/011150 A1

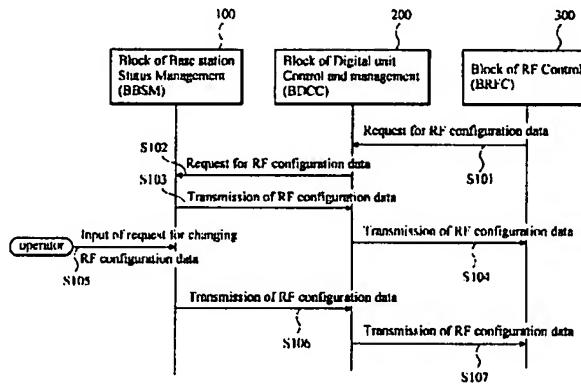
- (51) International Patent Classification⁷: H04B 7/155 (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GB, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (21) International Application Number: PCT/KR2004/001854
- (22) International Filing Date: 23 July 2004 (23.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 10-2003-0051154 24 July 2003 (24.07.2003) KR
- (71) Applicant (for all designated States except US): UTStarcom Korea Limited [KR/KR]; San 136-1, Ami-ri, Bubal-eub, Icheon-si, Kyongki-do 467-701 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): BAN, Ju Hyun [KR/KR]; Ju-eun Dason Apt. 101-807, 109, Eungam-ri, Bubal-eub, Icheon-si, Gyeonggi-do 467-761 (KR). SON, Sang Won [KR/KR]; Godam Dormitory 104-104, Godam-dong, Icheon-si, Gyeonggi-do 467-140 (KR).
- (74) Agent: YOON, Jee Hong; Hannuri Bldg., 219, Naejang-dong, Chongno-gu, Seoul 110-053 (KR).
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD FOR AUTOMATICALLY SETTING A FREQUENCY OF A BASE STATION IN A CDMA-2000 SYSTEM



(57) Abstract: The present invention is directed to a method for automatically setting a frequency of a base station in a CDMA-2000 system, comprising: defining a frequency configuration information in a Programmable Loading Data (PLD) that defines different frequency bands for respective service providers; reading the frequency configuration information from the PLD defining the frequency configuration information when the base station is initialized and transmitting it to a Block of RF control (BRFC); and automatically setting the frequency of the base station on the basis of the frequency configuration information. The method for automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention comprises: requesting RF configuration data from the BRFC to the BDCC when the base station is initialized; requesting RF configuration data from the BDCC to the BBSM; upon receiving the request for RF configuration data by the BBSM, reading a frequency configuration information from a PLD, which defines the frequency configuration information; transmitting the frequency configuration information to the BRFC via the BDCC; and setting the frequency of the base station on the basis of the frequency configuration information transmitted from the BRFC.

WO 2005/011150 A1

Description

METHOD FOR AUTOMATICALLY SETTING A FREQUENCY OF A BASE STATION IN A CDMA-2000 SYSTEM

Technical Field

- [1] The present invention generally relates to a method for automatically setting a frequency of a base station in a CDMA-2000 1x system, and particularly to a method for automatically setting a frequency in a CDMA-2000 system wherein a certain desired frequency band is automatically set for each service provider.
- [2] More particularly, the present invention is directed to a method for automatically setting a frequency of a base station in a CDMA-2000 system, comprising: defining a frequency configuration information in a Programmable Loading Data (PLD) that defines different frequency bands for respective service providers; reading the frequency configuration information from the PLD defining the frequency configuration information when the base station is initialized and transmitting such information to a Block of RF control (BRFC); and automatically setting the frequency of the base station on the basis of the frequency configuration information.

Background Art

- [3] In general, each service provider in Korea or other countries uses a different frequency band (e.g., 800MHz, 1.8GHz, 19GHz, 450MHz, etc.) in a CDMA-2000 1x system. Thus, the frequency bands used by various service providers are different from each other.
- [4] Conventionally, since each service provider uses a different frequency band, a package for each service provider was manufactured. Further, Blocks of Base Station Status Management (BBSMs) were provided for those packages, wherein the frequency was set with different frequency configuration information.

Disclosure of Invention

Technical Problem

- [5] The conventional structure, as defined above, often made it difficult to optimally manage the BBSM that sets frequency for various providers each having a different frequency band. There was always a likelihood that the manufactured packages may cause some problems in the frequency setting for each provider.
- [6] It is, therefore, an object of the present invention to address and resolve such

problems associated with said conventional structure where the packages were manufactured for respective service providers and different BBSMs were prepared for each package.

Technical Solution

- [7] The object of the present invention is to provide a method for automatically setting a frequency of a base station in a CDMA-2000 system wherein a suitable frequency band is automatically set for each service provider.
- [8] In particular, the object of the present invention is to provide a method for automatically setting a frequency of a base station in a CDMA-2000 system, comprising: defining a frequency configuration information in a Programmable Loading Data (PLD) that defines different frequency bands for respective service providers; reading the frequency configuration information from the PLD defining the frequency configuration information when the base station is initialized and transmitting such information to a Block of RF control (BRFC); and automatically setting the frequency of the base station on the basis of the frequency configuration information.
- [9] According to one embodiment of the present invention which achieves said object, there is provided a method for automatically setting a frequency of a base station in a CDMA-2000 system, wherein the system comprises: a Block of Base station Status Management (BBSM) for managing the status of the base station; a Block of Digital unit Control and management (BDCC) for controlling and managing digital units; and a Block of RF Control (BRFC) for automatically setting a RF frequency. The method comprises the following steps of: requesting RF configuration data from the BRFC to the BDCC when the base station is initialized; requesting RF configuration data from the BDCC to the BBSM; upon receiving the request for RF configuration data by the BBSM, reading a frequency configuration information from a PLD, which defines frequency configuration information; transmitting the frequency configuration information to the BRFC via the BDCC; and setting the frequency of the base station on the basis of the frequency configuration information transmitted from the BRFC.
- [10] According to another embodiment of the present invention which achieves said object, there is provided a method for automatically setting a frequency of a base station in a CDMA-2000 system, wherein the system comprises: a BBSM for managing the status of the base station; a BDCC for controlling and managing digital units; and a BRFC for automatically setting a RF frequency. The method comprises the following steps of: if an operator requests changing a RF configuration data, reading by the BBSM a frequency configuration information from a PLD that defines the

frequency configuration information and transmitting the frequency configuration information to the BDCC; transmitting the RF configuration data from the BDCC to BRFC; and setting the frequency of the base station on the basis of the frequency configuration information received in the BRFC.

Brief Description of the Drawings

- [11] These drawings depict only the preferred embodiments of the present invention and should not be considered as limitations of its scope. These as well as other features of the present invention will become more apparent upon reference to the drawings in which:
- [12] Fig. 1 illustrates a signal flow showing the automatic setting of a frequency of a base station in a CDMA-2000 system according to the present invention.
- [13] Fig. 2 illustrates a flow chart showing the RF information process in a BBSM for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.
- [14] Fig. 3 illustrates a flow chart showing the transmission and reception of a signal in a BDCC for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.
- [15] Fig. 4 illustrates a flow chart showing the automatic setting of a RF frequency in a BRFC for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.

Best Mode for Carrying Out the Invention

- [16] The preferred embodiments of the present invention will be described in detail with reference to the attached drawings.
- [17] In a preferred embodiment of the present invention, when BBSM is requested of RF configuration data from a BRFC via a BDCC or the frequency of a base station is changed by the request of an operator at the initialization of the base station, the BBSM reads a PLD relating to the frequency of the base station and transmits it to the BRFC. The BRFC receives a frequency configuration information and sets the frequency of the base station.
- [18] Fig. 1 illustrates a signal flow diagram showing the automatic setting of a frequency of a base station in a CDMA-2000 system according to the present invention.
- [19] In Fig. 1, reference numeral 100 indicates a Block of Base station Status Management (BBSM) that manages the base station status. Reference numeral 200 denotes a Block of Digital unit Control and management (BDCC) that controls and

manages a digital unit. Reference numeral 300 denotes a Block of RF Control (BRFC) that automatically sets RF frequency.

- [20] As shown in Fig. 1, at Step S101, the BRFC 300 requests a RF configuration data to the BDCC 200 when a base station is initialized. At Step 102, the BDCC 200 requests the RF configuration data to the BBSM 100.
- [21] When requested of the RF configuration data, then at Step S103, the BBSM 100 reads frequency configuration information (e.g., RF frequency interval value and RF frequency) in a PLD that defines the frequency configuration information and transmits it to the BDCC 200.
- [22] An Step 104, the BDCC 200 transmits the RF configuration information received from the BBSM 100. Then, the BRFC 200 sets a frequency of the base station on the basis of the frequency configuration information.
- [23] If an operator requests changing the RF configuration data at Step 105, then at Step 106, the BBSM 100 reads the frequency configuration information from the PLD that defines the frequency configuration information and transmits it to the BDCC 200.
- [24] Subsequently, at Step S107, the BDCC 200 transmits the RF configuration data to the BRFC 300 and the BRFC 300 sets the frequency of the base station on the basis of the frequency configuration information.
- [25] Fig. 2 is a flow chart illustrating the RF information process in a BBSM for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.
- [26] As shown in Fig. 2, the procedure of RF information process in a BBSM according to the present invention comprises the following steps of: checking whether the BRFC 300 requests the RF information (S201); if there is a request for the RF information, reading the RF-related PLD (S202); extracting RF frequency interval value and RF frequency from the PLD and storing them (S203); if there is no request for the RF information at Step S201, checking whether there is a request from an operator for changing the RF frequency information (S204); if there is a request for changing the RF frequency information in S204, storing the RF frequency interval value and RF frequency input by the operator (S205); Subsequent to Steps S203 and S205, obtaining a CDMA channel according to the FA of the base station (S206); storing the attenuation value of receipt (Rx) / transmission (Tx) per sectors (S207); and transmitting the RF information obtained from the PLS to the BDCC 200 (S208).
- [27] More detailed description on the procedure of the RF information process in the BBSM will be provided below.

- [28] First, the BBSM 100 checks whether the BRFC 300 generates a request for the RF information in S201. If the BRFC 300 generates a request for the RF information, then it reads the PLS relating to the RF information in S202. At Step 203, the BBSM 100 extracts the RF frequency interval value and RF frequency from the PLD and stores them.
- [29] If there is no request for the RF information in S201, then at Step S204, it is checked whether there is a request from an operator for changing the RF frequency information. If there is no request for changing the RF frequency information, then the process goes back to the first step. However, if there is a request from an operator for changing the RF frequency information, then at Step 205, the RF frequency interval value and RF frequency that the operator inputs are stored. In this step, the RF frequency interval value and RF frequency are stored just in case they are within the predetermined ranges. If they are not within the predetermined ranges, then an error signal is outputted and the procedure for automatically setting the frequency is finished.
- [30] Subsequent to Steps S203 and S205, CDMA channel depending on FA of a base station is obtained at Step S206. At Step S207, the attenuation values of receipt (Rx) / transmission (Tx) per sectors are stored. At Step S208, the RF information obtained from the PLD is transmitted to the BDCC 200.
- [31] Fig. 3 is a flow chart illustrating the transmission and reception of a signal in a BDCC for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.
- [32] As shown in Fig. 3, the procedure of transmitting and receiving signal in a BDCC according to the present invention comprises the following steps of: checking whether the RF information request signal that the BRFC 300 transmits is received (S301); if the RF information request signal that the BRFC 300 transmits is received, modifying the signal structure to transmit the RF information request signal to the BBSM 100 (S302); transmitting the modified RF information request signal to the BBSM 100 (S303); if the RF information request signal transmitted from the BRFC 300 is not received at Step S310, checking whether the RF information response signal transmitted from the BBSM is received (S304); if the RF information response signal is received at Step S304, modifying the signal structure to transmit the RF information response signal to the BRFC 300 (S305); and transmitting the modified RF information response signal to the BRFC 300 (S306).
- [33] More detailed description on the procedure of the RF information process in the

BBSM will be provided below.

- [34] At Step S301, the BDCC 200 checks whether the RF information request signal transmitted from the BRFC 300 is received. If the RF information request signal transmitted from the BRFC 300 is received, then at Step S302, the signal structure is modified to transmit the RF information request signal to the BBSM 100. At Step S303, the modified RF information request signal is transmitted to the BBSM 100. However, if the RF information request signal transmitted from the BRFC 300 is not received at Step S301, then at Step S304, it is checked whether the RF information response signal transmitted from the BBSM 100 is received. If the RF information response signal is received, then at Step S305, the signal structure is modified to transmit the RF information response signal to the BRFC 300. Subsequently, at Step S306, the modified RF information response signal is transmitted to the BRFC 300.
- [35] Fig. 4 is a flow chart illustrating the procedure of setting a RF frequency in a BRFC for the method of automatically setting a frequency of a base station in a CDMA-2000 system according to the present invention.
- [36] As shown in Fig. 4, the procedure of setting a RF frequency in a BRFC according to the present invention comprises the following steps of: transmitting a RF information request message to BDCC 200 (S401); checking whether the RF information message is received from the BDCC 200 (S402); if the RF information message is received, identifying the checksum of the received message (S403); determining whether said identified checksum is different from a value currently stored in a EEPROM (S404); if the identified checksum is identical to the value currently stored in the EEPROM, finishing the procedure of setting the frequency; if the checksum is different from the value currently stored in the EEPROM, replacing the value stored in the EEPROM with the received value (S405) and storing the received value; setting the frequency of the base station corresponding to the updated value stored in the EEPROM (S406-S412); setting an attenuation value to be used at the base station after the frequency setting of the base station (S413); and setting a PLL to be used at the base station (S414).
- [37] More detailed description on the procedure of setting a RF frequency in the BRFC will be provided below.
- [38] At Step S401, the BRFC 300 transmits the RF information request message to BDCC 200. At Step S402, it is checked whether the RF information message on the RF information request is received from the BDCC 200. If the RF information message is received, then at Step S403, the checksum of the received message is

identified. At Step S404, it is determined whether the identified checksum is different from the value currently stored in an EEPROM. If the identified checksum is identical to the value currently stored in the EEPROM, the procedure of setting the frequency is finished. However, if the identified checksum is different from the value currently stored in the EEPROM, then at Step S405, the value stored in the EEPROM is replaced by the received value and the received value is stored in the EEPROM. At Steps S406-412, the frequency of the base station is set correspondingly to the updated value stored in the EEPROM. In other words, when the value stored in the EEPROM is 450MHz (S406), the frequency of the base station is set as 450MHz, at Step S407. When the value stored in the EEPROM is 800MHz (S408), the frequency of the base station is set as 800MHz at Step S409. When the value stored in the EEPROM is 1.8GHz/19GHz (S410), the frequency of the base station is set as 1.8GHz/19GHz at Step S411. Further, if the value stored in the EEPROM is different from said frequency values, the stored value is set as the frequency of the base station.

- [39] After the frequency of the base station is set at Step 413, attenuation values of receipt/transmission (Rx/Tx) to be used at the base station is obtained and set from the received message information. At Step S414, a PLL to be used at the base station is obtained and set from the received message information.

Industrial Applicability

- [40] In the present invention, different frequency configuration information is defined for each service provider in a PLD. Further, the frequency configuration information read from the PLD when a base station is initialized and is transmitted to a BRFC, in which the frequency of the base station is set thereby. As such, the possibility of error in manufacturing packages for respective service providers may be eliminated and easier management of the Block of Base station Status Management may be provided, thereby improving the stability and reliability of the system.

Claims

- [1] A method for automatically setting a frequency of a base station in a CDMA-2000 system, the system comprising a Block of Base station Status Management (BBSM) for managing the status of the base station, a Block of Digital unit Control and management (BDCC) for controlling and managing digital units and a Block of RF Control (BRFC) for automatically setting a RF frequency, said method comprising the steps of:
requesting RF configuration data from the BRFC to the BDCC when the base station is initialized;
requesting RF configuration data from the BDCC to the BBSM;
upon receiving the request for RF configuration data by the BBSM, reading a frequency configuration information from a PLD, which defines the frequency configuration information;
transmitting the frequency configuration information to the BRFC via the BDCC; and
setting the frequency of the base station on the basis of the frequency configuration information transmitted from the BRFC
- [2] The method of Claim 1, wherein the BBSM performs the operations comprising the steps of:
checking whether an initial RF information request is generated from the BRFC; as a result of said checking, if the initial RF information request is generated, reading a RF-related PLD;
extracting a RF frequency interval value and RF frequency from the read PLD and storing them;
as a result of said checking, if the initial RF information request is not generated, identifying whether there is a request for changing a RF frequency information; as a result of said identifying, if there is the request for changing the RF frequency information, storing the RF frequency interval value and the RF frequency that an operator inputs;
obtaining a CDMA channel depending on a FA of the base station after the RF frequency is stored;
storing attenuation values of receipt (Rx) / transmission (Tx) per sectors; and transmitting the RF information obtained from the PLD to the BDCC.
- [3] The method of Claim 1, wherein the BDCC performs the operations comprising

the steps of:

checking whether a RF information request signal transmitted from the BRFC is received;

as a result of said checking, if the RF information request signal transmitted from the BRFC is received, modifying the signal structure of the RF information request signal to transmit the RF information request signal to the BBSM;

transmitting the modified RF information request signal to the BBSM;

as a result of said checking, if the RF information request signal is not generated from the BRFC, determining whether a RF information response signal transmitted from the BBSM is received;

as a result of said determining, if the RF information response signal is received, modifying the signal structure of the RF information response signal to transmit the RF information response signal to the BRFC; and

transmitting the modified RF information response signal to the BRFC;

- [4] The method of Claim 1, wherein the BRFC performs the operations comprising the steps of:

transmitting a RF information request message to the BDCC;

checking whether a RF information message is received from the BDCC;

as a result of said checking, if the RF information message is received,

identifying a checksum of the received message;

determining whether the identified checksum is different from a value currently stored in an EEPROM;

if the identified checksum is identical to the value currently stored in the

EEPROM, finishing the operations for automatically setting a frequency of a base station;

if the identified checksum is different from the value currently stored in the EEPROM, replacing the value stored in the EEPROM with the received value and storing the received value in the EEPROM;

setting the frequency of the base station correspondently to the replaced and stored value;

setting attenuation values to be used at the base station after the frequency of the base station is set; and

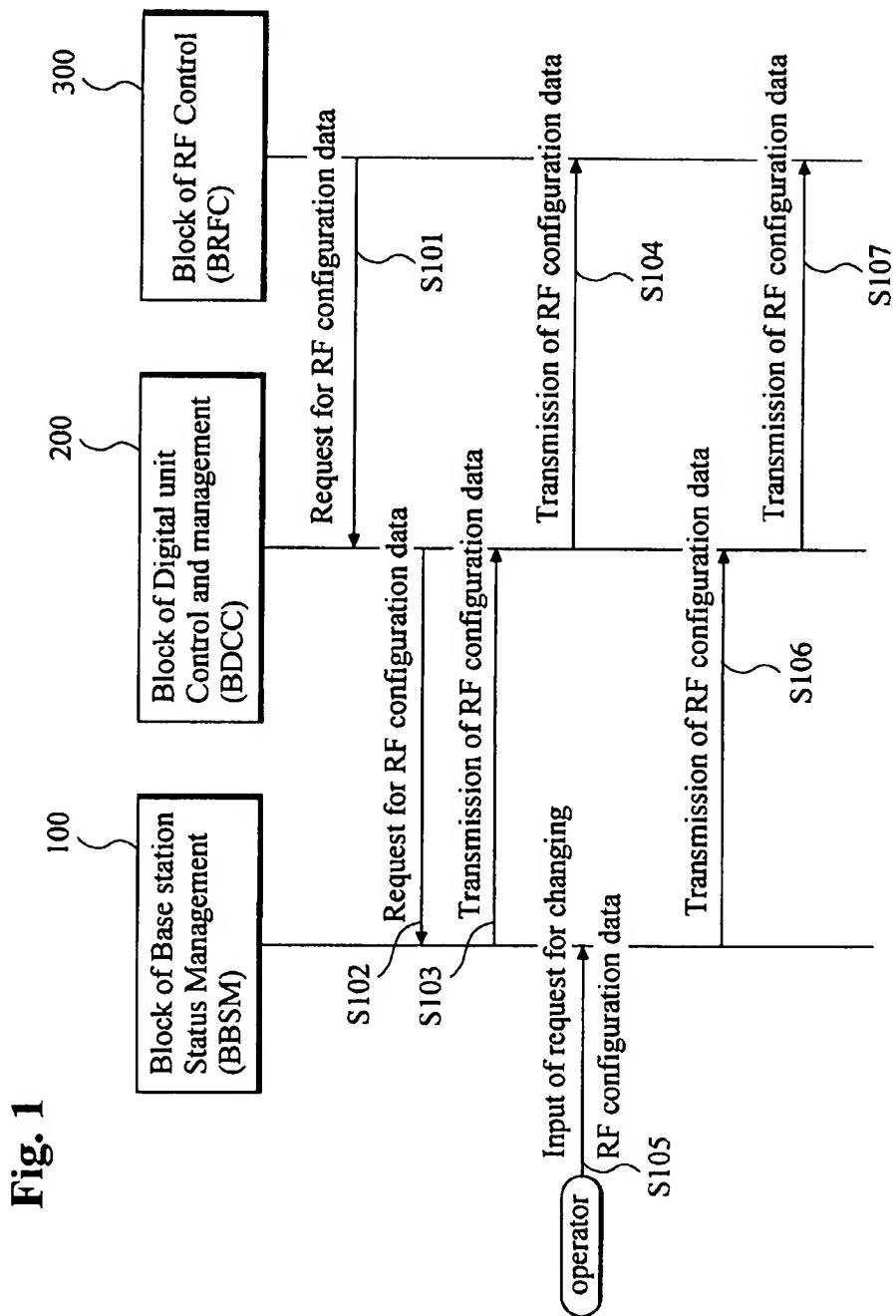
setting a PLL to be used in the base station.

- [5] A method for automatically setting a frequency of a base station in a CDMA-2000 system, the system comprising a BBSM for managing the status of the base

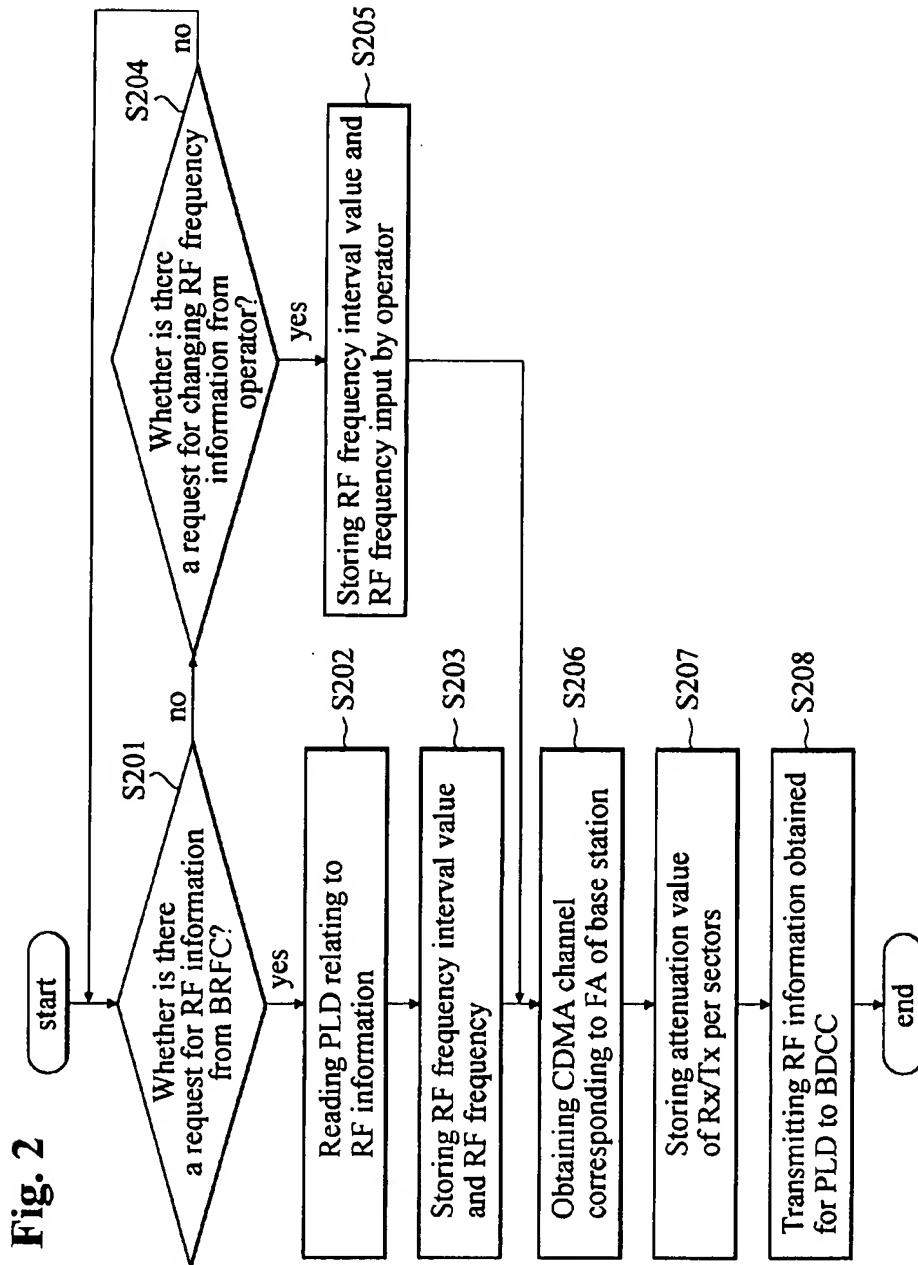
station, a BDCC for controlling and managing digital units and a BRFC for automatically setting a RF frequency, said method comprising the steps of:
if an operator requests changing a RF configuration data, reading by the BBSM a frequency configuration information from a PLD that defines the frequency configuration information and transmitting the frequency configuration information to the BDCC;
transmitting the RF configuration data from the BDCC to BRFC; and
setting the frequency of the base station on the basis of the frequency configuration information received in the BRFC.

WO 2005/011150

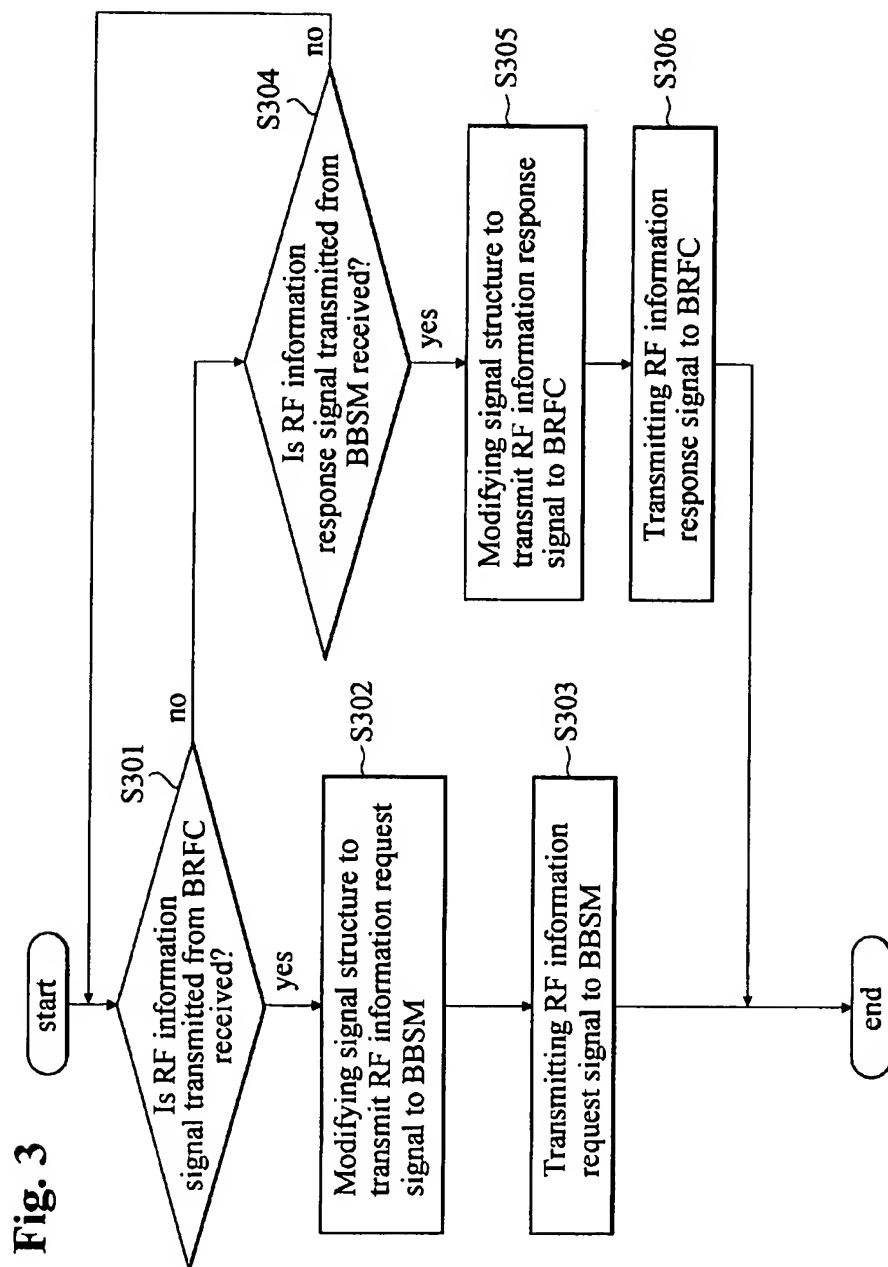
[Fig. 1]



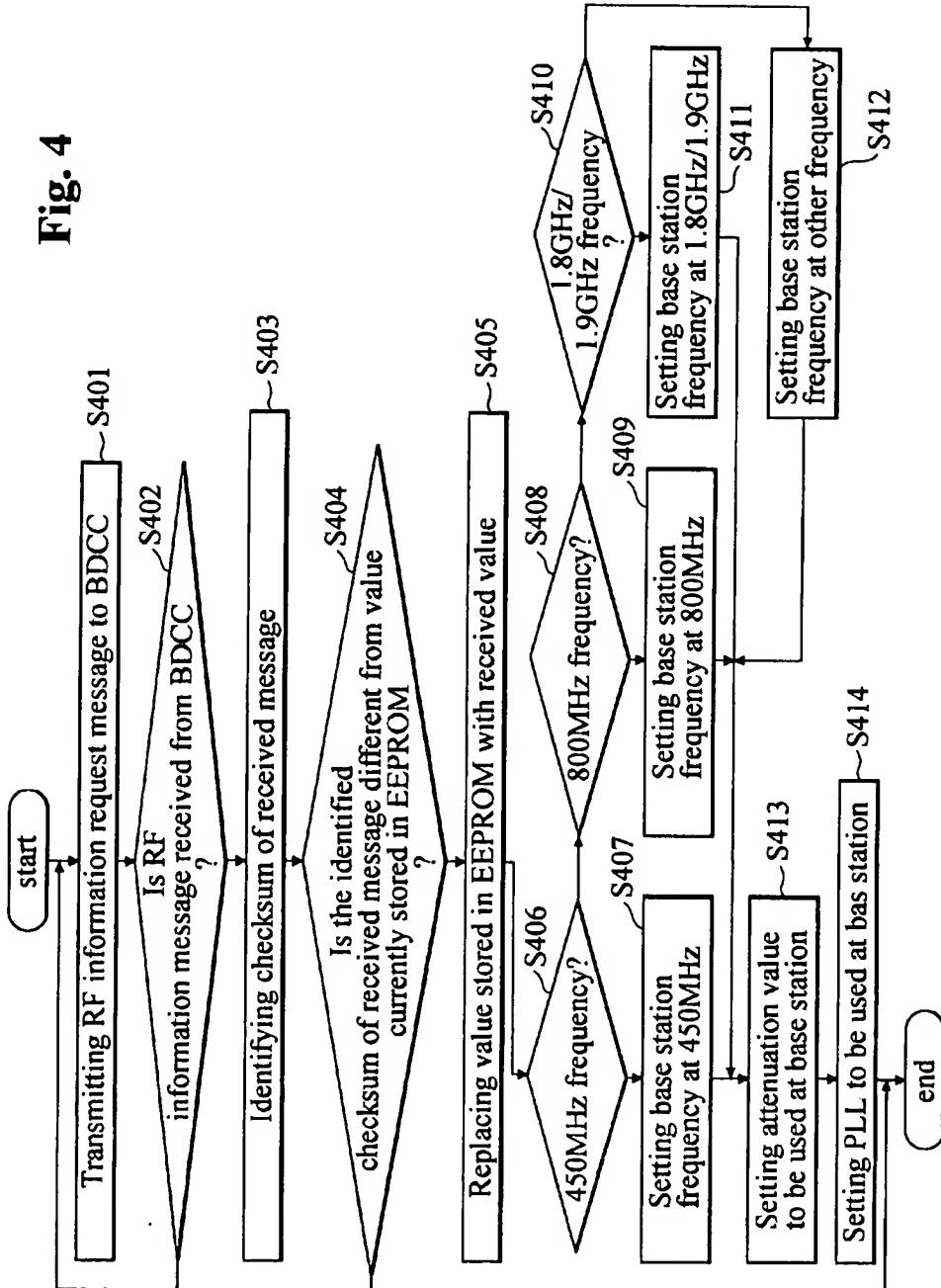
[Fig. 2]



[Fig. 3]



[Fig. 4]

Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2004/001854

A. CLASSIFICATION OF SUBJECT MATTER		
IPC7 H04B 7/155		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) H04B, H04Q		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched KR, JP : as above		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKIPASS "BASE <and> STATION <and> FREQUENCY <and> DETECT*		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP0731572 A1(TOYOTA MOTORS) SEP.11, 1996, see abstract and drawings	1
A	US6157629 A(HYUNDAI ELECTRO.) DEC.5, 2000, see abstract and drawings	1
A	JP10322756 A(MITSUBISHI) JUL.11, 1997, see abstract and drawings	1
A	JP06125246 A(NTT) MAY.6, 1994, see abstract and drawings	1
<input type="checkbox"/> Further documents are listed in the continuation of Box C.		<input checked="" type="checkbox"/> See patent family annex.
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"B" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>		<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&" document member of the same patent family</p>
Date of the actual completion of the international search 24 AUGUST 2004 (24.08.2004)	Date of mailing of the international search report 25 AUGUST 2004 (25.08.2004)	
Name and mailing address of the ISA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer JEON, Jong Seong Telephone No. 82-42-481-5948	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/KR2004/001854

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP0731572 A1(TOYOTA MOTORS)	SEP.11, 1996	US5864573 A JP8242213 A	JAN.26, 1999 SEP.17, 1996
US6157629 A(HYUNDAI ELECTRO.)	DEC.5, 2000	KR238631 B1	JAN.15, 2000